

What is claimed is:

1. A method for producing a decorative pre-impregnated sheet, comprising:

providing a decorative layer;

applying a mixture comprising a thermohardening synthetic resin and hard particles to the decorative layer;

applying a wax or a mixture of waxes having a melting range below a temperature of about 140°C to the decorative layer, or to the mixture, and

drying the applied mixture at a drying temperature above the melting range of the wax.

2. The method according to claim 1, further comprising pressing the decorative layer, the mixture and the wax in a hot press at a press temperature to form a laminate.

3. A method for producing a decorative laminate comprising:

providing a decorative layer,

applying a mixture comprising a thermohardening synthetic resin and hard particles to the decorative layer,

applying a wax or a mixture of waxes having a melting range below a temperature of about 140°C to the decorative layer or to the mixture, and

pressing the decorative layer, the mixture and the wax in a hot press at a press temperature to form a laminate.

4. A method for producing a decorative laminate, comprising:

providing a decorative layer,

5

applying a mixture comprising at least a thermohardening synthetic resin and hard particles to the decorative layer,

10

applying a wax or mixture of waxes to the decorative layer or to the mixture, and

pressing the decorative layer, the mixture and the wax in a hot press at a press temperature to form a laminate,

15

wherein a melting range of the wax is by more than about 50°C below the press temperature.

20

5. A method for producing a decorative laminate board, comprising:

providing a decorative layer,

25

applying a mixture comprising a thermohardening synthetic resin and hard particles to the decorative layer,

30

applying at least one wax to the decorative layer or to the mixture,

arranging the decorative layer on a supporting substrate, and

35

pressing the supporting substrate, the decorative layer, the mixture and the wax in a hot press at a press temperature to form a decorative laminate board,

wherein a melting range of the at least one wax is at least one of below a temperature of about 140°C and by more than 50°C below the press temperature.

- 5 6. The method according to claim 5, wherein the melting range is by more than 60°C lower than the press temperature.
7. The method according to claim 5, wherein a dwell time in
10 the press is from about 4 to 60 seconds.
8. The method according to claim 5, wherein a pressure of the press is less than 50 bars.
- 15 9. The method according to claim 5, wherein the press temperature is at least equal to or higher than a hardening temperature suitable for hardening the at least one synthetic resin.
- 20 10. The method according to claim 5, wherein the at least one wax has a melting viscosity of less than 75 mPa.s at the press temperature.
- 25 11. The method according to claim 5, further comprising drying the decorative layer with the applied mixture before the pressing, and at a drying temperature within a drying temperature range below the press temperature.
- 30 12. The method according to claim 11, wherein the drying is carried out until a remaining water content is 7% at most, in particular at least 6%.
13. The method according to claim 11, wherein the melting range of the wax is below the drying temperature.
- 35 14. The method according to claim 11, wherein the drying temperature range is about 140°C to 190°C.

15. The method according to claim 11, wherein during the drying, the drying temperature initially has an increasing temperature profile and thereafter a decreasing temperature profile.
- 5 16. The method according to claim 11, wherein a drying time is from 1 to 3 minutes.
- 10 17. The method according to claim 5, wherein the application of the wax is carried out together with the application of the mixture.
- 15 18. The method according to claim 17, wherein the wax is a component of the mixture.
19. The method according to claim 5, wherein the melting range of the wax is above 60°C.
- 20 20. The method according to claim 5, wherein at least 90% of the hard particles have a size below 80 µm.
21. The method according to claim 5, wherein the thermohardening synthetic resin is a melamine resin.
- 25 22. The method according to claim 5, wherein the hard particles are aluminium oxide particles.
23. The method according to claim 5, wherein the wax is a Fisher-Tropsch-Wax.
- 30 24. The method according to claim 5, wherein the at least one wax is comprised in the mixture in an amount of from 0.1 to 5 weight percent of the mixture.
- 35 25. A decorative, pre-impregnated sheet comprising:

a decorative layer, and

a mixture applied to the decorative layer, the mixture comprising at least one thermohardening synthetic resin, hard particles, and at least one wax whose melting range is below a temperature of about 140°C, preferably below a temperature of about 130°C, and in particular below a temperature of about 120°C.

26. A decorative laminate, comprising:

a decorative layer, and

a protective layer fixedly attached to the decorative layer, the protective layer comprising a mixture of at least one thermohardened synthetic resin, hard particles and at least one wax, wherein a melting range of the wax is below a temperature of about 140°C.

27. The decorative laminate according to claim 26, wherein the at least one wax is a Fischer-Tropsch-Wax.

28. The decorative laminate according to claim 26, wherein the hard particles are aluminium oxide particles.

29. The decorative laminate according to claim 26, wherein at least 90% of the hard particles have a size of less than 80 µm.

30. The decorative laminate according to claim 26, wherein the hard particles are present in the mixture in an amount of from 5 to 65 weight percent.

31. The decorative laminate according to claim 26, wherein the thermohardened synthetic resin is one of a melamine resin and a mixture of melamine resins.

32. The decorative laminate according to claim 26, wherein the wax is accumulated on a surface of the laminate.

33. The decorative laminate according to claim 26, wherein a concentration of the wax in the protective layer has a negative gradient in a direction of a depth of the layer.

5

34. The decorative laminate according to claim 26, wherein out of all components, the wax forms the largest part of the mass in a surface of the laminate, in particular forms more than half of the mass.

10

35. The decorative laminate according to claim 26, wherein an average thickness of the protective layer is between 20 and 30 μm .

15

36. A decorative laminate board comprising a supporting substrate on which a decorative laminate according to claim 26 is arranged.

20

37. The decorative laminate board according to claim 36 for use as a floor covering.